



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

SV

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/759,671	01/12/2001	James T. St. John	8194-470	2702

7590 04/05/2005
MYERS BIGEL SIBLEY & SAJOVEC pa
P.O. BOX 37428
RALEIGH, NC 27627

EXAMINER

MEHRA, INDER P

ART UNIT PAPER NUMBER

2666

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/759,671	Applicant(s) ST. JOHN ET AL.	
	Examiner Inder P Mehra	Art Unit 2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15 and 22-27 is/are rejected.
- 7) ☒ Claim(s) 14 and 16-21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/28/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to application filed 1/12/01.

Claim Objections

2. Claim 3 objected to because of the following informalities:

Claim 3 recites "requests" (second occurrence) in line 2. Change it to "the requests", because it is preceded by requests in line 1 (first occurrence).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-11 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the request" in line 8. There is insufficient antecedent basis for this limitation in the claim. There are two possible limitations precedent to this limitation, such as, "request queues" in line 4; and ""request for access" in line 6. It is not clear as to which one is an antecedent basis? Similar problem exists in claim 2 line 3.

Claim 2 line 3 recites the limitation "the low priority tier" " in line 3. There is no antecedent basis for this limitation in the claim. Similar problem exists in claim 3 line 3; claim 4 lines 3 and 5; claim 6 lines 2

Art Unit: 2666

Claim 5 recites the limitation "directing a request" in line 1. There is insufficient antecedent basis for this limitation in the claim. This step is recited in claim 1 line 6. This limitation should, therefore, have "the" in front of it. Similar problem exists with limitation "a request for access", which is preceded in claim 1 line 6. Further, limitation "the request" in claim 5 lines 6, 8-10 is preceded by two types of 'requests', such as, "a request into an initial queue" in lines 1-2 and "a request for access" in line 4. It is confusing as to which request it pertains to.

Note: Since there are more similar problems of "lack of antecedent basis", please, check the rest of the claims, and appropriate correction be made.

Information Disclosure Statement

5. The information disclosure statements filed 11/19/02 and 1/30/04 fail to comply with 37 CFR 1.98(a)(1), which requires the following: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement. The information disclosure statement has been placed in the application file, but the information referred to therein has not been considered.

Form -1449 listing the documents and also documents, where necessary, has not been

Art Unit: 2666

received with the information disclosure statements filed 11/19/02 and 1/30/04. Appropriate action be taken to provide these documents.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 6-7, 12, 15, 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Guerin et al** (US Patent No. 6,377,546), hereinafter, Guerin in view of **Lyles et al** (US Patent No. 5,917,822), hereinafter, Lyles.

For claims 1, 6-7, 12, 15, 24-27, Guerin discloses “a method of controlling access to a shared communication medium (a method for providing rate guarantees whereby a single link may be shared amongst multiple streams with link reservations in a manner that is fair, efficient and scalable, refer to col. 4 lines 45-50), the method comprising:

dividing a revolving priority queue (RPQ) into at least a low priority tier having a plurality of request queues and a high priority tier having a plurality of request queues (In the RPQ scheme, the ordering of packet transmissions, which the sorted list provides, is now provided by keeping a fixed number of queues and rotating the priority values of each queue every T time units, refer to col.3 line 67 through col. 4 line 4” ; and

directing a request for access to the shared communication medium into an initial queue in the high priority tier if throughput for an end user associated with the request fails to

Art Unit: 2666

meet a guaranteed throughput (Accordingly, the aforementioned objectives are achieved through the use of a *novel buffer management scheme* that enables rate (B/W) guarantees to be provided to individual flows (or sets of flows) without requiring a sophisticated scheduler that can *arbitrate between packets waiting for transmission*, refer to col. 4 lines 58-63).

Guerin does not disclose explicitly the following limitations which are disclosed by Lyles, as follows:

“directing a request for access to the shared communication medium into an initial queue in the high priority tier if throughput for an end user associated with the request fails to meet a guaranteed throughput”, **as recited by claims 6 and 7 also**, (refer to “Further, the inventive scheme supports multiple quality of service (QoS) classes via mechanisms which give highest priority to the service class with the most stringent QoS requirements”, refer to col. 6 lines 56-59;

allocating bandwidth based on an order in which the information indicating bandwidth requirements for a connection is read from the RPQ, **as recited by claims 12, 25 and 27**, refer to col. 6 lines 44-60.

It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of directing a request for access to the shared communication medium into an initial queue in the high priority tier if throughput for an end user associated with the request fails to meet a guaranteed throughput. The capability can be implemented by connecting the scheduler to the queues. The motivation for using scheduler in combination with queues being that it provides a need to allocate bandwidth, fairly, and dynamically, in a shared-media packet switched network.

8. Claims 9, 13 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Guerin et al**, hereinafter, **Guerin**, and **Lyles et al**, hereinafter, **Lyles**, as above, and further, in view of **Gubbi et al** (US Patent No. 6,865,609), hereinafter, **Gubbi**.

For claim 13, **Guerin** and **Lyles** disclose all the limitations of subject matter with the exception of the following limitation, which has been disclosed by **Gubbi**, as follows:

“wherein the information indicating bandwidth requirements comprises requests for bandwidth (The server 12 maintains a dynamic table, which includes forward and backward bandwidth requirements of all on-line clients 16. This information may be used when determining whether a new connection may be granted to a new client. For example, if a new client 16 requires more than the available bandwidth in either direction, server 12 may reject the connection request, refer to col. 4 lines 25-35).

It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of the information indicating bandwidth requirements comprises requests for bandwidth. The motivation for using scheduler in combination with queues being that it provides a need to allocate bandwidth, fairly, and dynamically, in a shared-media packet switched network.

For claims 9 and 22, **Guerin** discloses all the limitations of the subject matter of the claim with the exception of the following limitations, which are disclosed by **Lyles**, as follows:

“ wherein the shared communication medium is a cable television system and wherein requests for bandwidth comprise requests for access to an upstream channel of the cable

Art Unit: 2666

television system”, **as recited by claims 9 and 22**; (The term "hybrid fiber-coax (HFC) network" means a network comprising a combination of optic fiber links and coaxial fiber links, e.g., the network 100 shown in FIG. 1 (see also FIG. 2). One aspect of a HFC network important to the present description is its characterization as a shared-media access network, refer to col. 8 lines 58-64).

It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of using the shared communication medium is a cable television system and wherein requests for bandwidth comprise requests for access to an upstream channel of the cable television system. The capability can be implemented by connecting the bandwidth allocator to hybrid fiber-coax (HFC) network. The motivation for using scheduler in combination with queues being that it provides a need to allocate bandwidth, fairly, and dynamically, in a shared-media packet switched network.

9. Claims 10 and 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Guerin et al**, hereinafter, Guerin, and **Lyles et al**, hereinafter, Lyles in view of **Dravida et al** (US Patent No. 2004/0019876), hereinafter, Dravida

For claim 10, Guerin and Lyles disclose all the limitations of subject matter with the exception of the following limitation, which has been disclosed by Dravida, as follows:

“wherein the cable television system is a Data Over Cable (DOCSIS) compatible system”, **as recited by claims 10 and 23**, (The HFC plant already offers cable television and, in some cases, broadband Internet access via DOCSIS, refer to paragraph 0022).

Art Unit: 2666

It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of wherein the cable television system is a Data Over Cable (DOCSIS) compatible system. The motivation for using cable television system in combination with queues being that it provides a need to allocate bandwidth, fairly, and dynamically, in a shared-media packet switched network.

10. Claims 2 and 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Guerin et al**, hereinafter, Guerin in view of **Lyles et al**, hereinafter, Lyles, as above, further in view of **Nattkemper et al** (US Patent No. 6,754,206), hereinafter, '206.

For claims 2 and 5, Guerin and Lyles disclose all the limitations of subject matter with the exception of the following limitation, which has been disclosed by '206, as follows:

receiving a request for access to the shared communication medium associated with a connection having a guaranteed throughput; determining if the connection associated with the request has met its guaranteed throughput, **as recited by claim 5** (provide a method for providing rate guarantees whereby a single link may be shared amongst multiple streams with link reservations in a manner that is fair, efficient); and

“directing the request for access to the shared communication medium into an initial queue in the low priority tier if throughput for an end user associated with the requests meets or exceeds the guaranteed throughput”, **as recited by claims 2 and 5**, (The controlling software drives these discard engines to fairly discard the active low priority queues in the system. The discards should be proportional to the rate that each virtual circuit is provisioned for. If,

Art Unit: 2666

however, some VCs have guaranteed minimum throughput, then the VC accounting hardware should prevent discards for these VCs until after their minimum throughput is enqueued, refer to col. 49 lines 5-12).

It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of directing the request for access to the shared communication medium into an initial queue in the low priority tier if throughput for an end user associated with the requests meets or exceeds the guaranteed throughput. The capability can be implemented by connecting the bandwidth allocator to CMTS . The motivation for using scheduler in combination with queues being that it provides a need to allocate bandwidth, fairly, and dynamically, in a shared-media packet switched network.

11. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Guerin et al**, hereinafter, **Guerin**, **Lyles et al**, hereinafter, **Lyles**, and **Nattkemper et al** , hereinafter, '206, as above, further in view of **Malmlof** (US Patent No. 6,594,241).

For claim 8, Guerin, Lyles and '206 disclose all the limitations of subject matter with the exception of the following limitation, which has been disclosed by Malmlof, as follows:

“placing requests which do not have an associated guaranteed throughput into a request queue in the low priority tier” (low priority would include users with small demands in throughput and delays (e.g., an e-mail user), refer to col. 2 lines 40-42).

It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of placing requests which do not have an associated guaranteed throughput into a request queue in the low priority tier. The capability can be implemented by

Art Unit: 2666

connecting the bandwidth allocator to CMTS . The motivation for using scheduler in combination with queues being that it provides a need to allocate bandwidth, fairly, and dynamically, in a shared-media packet switched network.

12. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Guerin et al**, hereinafter, **Guerin**; **Lyles et al**, hereinafter, **Lyles**; **Nattkemper et al**, hereinafter, '206; as above further in view of **Gilbertson et al** (US Patent No. 6,260,099), hereinafter, '099.

For claim 3, **Guerin**, **Lyles** and '206 disclose all the limitations of subject matter with the exception of the following limitation, which has been disclosed by '099, as follows:

“reading requests for access from the RPQ, where requests are read from the high priority tier before requests are read from the low priority tier of queues; and allocating bandwidth based on the order in which requests are read from the RPQ”, **as recited by claim 3**, (The LRSRP technique allows inactive requesters assigned to higher priorities than a granted requester to maintain their current relative priority rank, while allowing all requesters assigned to lower priorities than the granted requester to collectively increment in priority ranking, refer to col. 17 lines 13-21).

It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of reading requests for access from the RPQ, where requests are read from the high priority tier before requests are read from the low priority tier of queues; and allocating bandwidth based on the order in which requests are read from the RPQ. The capability can be implemented by connecting the bandwidth allocator to CMTS . The

Art Unit: 2666

motivation for using scheduler in combination with queues being that it provides a need to allocate bandwidth, fairly, and dynamically, in a shared-media packet switched network.

Allowable Subject Matter

13. Claims 14 and 16-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. Claims 4 and 11 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Prior Art of Record

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- **Mergard et al** (US Patent No. 6,415,348) discloses a microcontroller providing a flexible architecture to readily support both general embedded applications communications applications.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Inder P Mehra whose telephone number is 571-272-3170. The examiner can normally be reached on Monday through Friday from 8AM to 5PM.

Art Unit: 2666

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Inder Pal Mehra

Inder P Mehra

Examiner

Art Unit 2666

4/1/05

DANG TON
PRIMARY EXAMINER